BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

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IN THE MATTER OF THE APPLICATION BY TRANSCANADA KEYSTONE PIPELINE, LP FOR A PERMIT UNDER THE SOUTH DAKOTA ENERGY CONVERSION AND TRANSMISSION FACILITIES ACT TO CONSTRUCT THE KEYSTONE XL PROJECT	:	DOCKET NUMBER HP09-001 REBUTTAL TESTIMONY OF JON SCHMIDT

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1. State your name and occupation.

Answer: My name is Jon Schmidt. I am employed as Vice President, Environmental and Regulatory Services, Energy Services, by Trow Engineering Consultants, Inc., the prime consultant for the Keystone XL Project.

2. Did you provide direct testimony in this proceeding?

Answer: Yes.

3. To whose testimony are you responding in rebuttal?

Answer: I am responding to the direct testimony of James Arndt, Paige Hoskinson Olson, Tom Kirschenmann, and Ross Hargrove.

4. On page 3 of his direct testimony, Arndt states that Keystone's responses to questions and PUC Staff data requests that were not in the original application should be incorporated into the CMRP. What is your response?

Answer: The CMR Plan is a Best Management Practices (BMPs) document for the entire project and not specific to South Dakota. Specific recommendations for South Dakota that Keystone is in agreement with from the PUC Staff data requests will be incorporated into the Con/Rec unit mapping currently underway for the project.

5. On page 5 of his direct testimony, Arndt states that the maps contained in the soil map book attached as Exhibit A to Keystone's application cannot be used to assess potential project-related soils impacts without more specific information. What is your response?

Answer: The maps attached to Keystone's application are in the same format as the maps submitted with the application for a permit to construct the Keystone Pipeline, and comply with the PUC's filing requirements. The maps are intended to show where certain soil types occur, not to assess their impacts, which is explained in the text. It is not industry practice to prepare maps that explain potential soils impacts of construction, but a great deal of the mitigative procedures are addressed in the Construction/Reclamation (Con/Rec) Unit mapping.

6. On page 6 of his direct testimony, Arndt states that the method for calculating state-level percentages for compaction and rutting-prone soils, soils with low reclamation potential, hydric soils, and prime farmland soils, and the definitions for these soils, were not provided. What is your response?

Answer: The method and definitions are contained in Keystone's Response to Staff's Third Data Request, Nos. 3-23 through 3-34, dated August 21, 2009, which are attached here for convenience as Exhibit A.

7. On page 6 of his direct testimony, Arndt states that Keystone does not quantify or locate saline and sodic soils. What is your response?

Answer: This information is provided in Exhibit A referred to above at Nos. 3-23 through 3-25.

8. On page 6 of his direct testimony, Arndt states that Keystone did not address soil-related limitations for certain soils, including soils with restrictive layers (lithic/paralithic), steep slopes, high pH, and highly wind and water erodible soils. What is your response?

Answer: Keystone did not address these particular soil limitations mentioned since they are usually addressed during pipeline construction. Steep slopes have been identified by Keystone and will be shown on construction alignment sheets along with

recommended erosion control practices such as water bars, mulching, and matting. Environmental inspectors will assess these slopes during construction and direct recommendations based upon actual field conditions. Soils with a high pH are addressed in Con/Rec Units, as well as during construction. Lithic and paralithic soils that are exposed on the surface have been identified in areas such as breaks and badlands and will be addressed in the Con/Rec Unit mapping.

9. On page 6 of his direct testimony, Arndt states that while the CMRP is described as providing soil protection measures, applicable sections specific to identified soil limitations are not cited in the application. What is your response?

Answer: Preparation of the Con/Rec Units, addressed in Keystone's Response to Staff's Third Data Request, No. 3-25, is in process, and they will be provided to the PUC before construction as indicated in Keystone's response to Staff's Fourth Data Request, No. 4-4.

10. On page 6 of his direct testimony, Arndt states that Keystone does not provide a protocol for working with landowners and soil conservation agencies to identify and implement recommended soil conservation practices. What is your response?

Answer: The protocol for working with landowners first requires consultation with the local NRCS office regarding soil conservation and revegetation procedures.

Keystone develops the Con/Rec Units by incorporating industry best management practices and NRCS input with project field data and scientific literature This process ensures a consistent application of soil conservation procedures project-wide. These soil conservation procedures are then discussed with landowners to ensure that all farm management activities and any additional landowner information and insight are taken into account.

11. On page 7 of his direct testimony, Arndt states that no soil or land use groupings are provided in the application for soil reclamation and seeding prescriptions, especially in range. What is your response?

Answer: Information addressing NRCS range class equivalents is provided in Keystone's Responses to Staff's Third Data Request, Nos. 3-25 and 3-31.

12. On page 8 of his direct testimony, Arndt states that slope ranges were not provided to identify steeply sloping soils, and the category "all shallow restrictive layers" was not defined. What is your response?

Answer: This issue is addressed in my answer to No. 8 above.

13. On page 9 of his direct testimony, Arndt recommends that the PUC require Keystone to provide its Con/Rec Unit classification system and corresponding pipeline milepost references before construction and that the system be prepared in

consultation with appropriate state or area NRCS staff. What is your response?

Answer: Keystone is in the process of preparing the Con/Rec Unit classifications and will provide this information to the PUC before construction.

14. On pages 11-12 of his direct testimony, Arndt recommends that the PUC require Keystone to consult with the state or area NRCS office to identify soils for which alternative handling methods in agricultural lands would be appropriate, to develop construction procedures to minimize the impacts, and to make the alternative soil handling methods available to landowners. What is your response?

Answer: The soils mentioned in Arndt's testimony are paralithic shale, sandstone, and underlying saline subsoils. Other than surficial soil identification (which has been done), it is not practical to try to identify these soils below the surface in the field and alternative handling methods would not always identify the layers conclusively. As discussed in no. 10 above, Keystone will consult with the NRCS during the development of the Con/Rec Units.

15. On page 13 of his direct testimony, Arndt discusses specialized construction and/or mitigation measures identified in a response to a PUC Staff data request for use in steep areas characterized by the presence of sodium bentonite. On page 14, Arndt recommends that the PUC require Keystone to "include such practices as

applicable to specific Con/Rec units when it develops specifications for each unit prior to construction." What is your response?

Answer: Understanding that "such practices" means the measures outlined on page 13 of Arndt's testimony, Keystone will include those measures as applicable in the appropriate Con/Rec Units.

16. On pages 15-16 of his direct testimony discussing sand hills construction and reclamation methods, Arndt states that Keystone provided entry and exit mileposts for sandhills areas, but did not identify the specific soils. What is your response?

Answer: A table of soils found in the sandhills area in southern Tripp County was provided in Keystone's Responses to Staff's Third Data Request, No. 3-23. That information is included in the table appended to Arndt's testimony as Attachment 2.

17. On page 16 of his direct testimony, Arndt recommends that the approach Keystone used to identify specific construction and reclamation procedures to be implemented in the sand hills areas be used as a template for the development of construction and reclamation procedures to be incorporated into other proposed Con/Rec Units. What is your response?

Answer: This testimony is unclear to me. I am not certain what "approach" Arndt refers to. The procedures for construction and reclamation will necessarily differ from unit to unit.

18. On page 17 of his direct testimony, Arndt recommends that the PUC condition a permit on Keystone's development of a "workable system" of Con/Rec Units developed with "input from appropriate agency staff." What is your response?

Answer: Keystone is in the process of developing the Con/Rec Units and procedures in consultation with appropriate NRCS staff and will submit the completed product to the PUC.

19. On page 18 of his direct testimony, Arndt discusses Keystone's site-specific erosion control measures, and states that Keystone's final pre-construction design "will include site-specific drawings and plans that identify and locate the type of best management practices proposed for specific highly erosive locations that are considered particularly sensitive to erosion." What is your response?

Answer: Best management practices for erodible soils will be included in the Con/Rec Units that Keystone is finalizing. Keystone does not intend to produce separate "site-specific drawings and plans," but will use existing typicals from the CMRP.

20. On page 2 of his direct testimony, Tom Kirschenmann addresses the "fragmentation of large continguous tracts of native prairie resulting from infrastructure." What is your response to his concern?

Answer: As Kirschenmann's own testimony recognizes on page 3, reseeding of ground disturbed by pipeline construction with native species will largely avoid grassland fragmentation. Total acreage devoted to access roads, pump stations, and valve sites is comparatively minimal.

21. On page 3 of his direct testimony, Kirschenmann states that sage brush habitat altered or destroyed during construction "should be replanted to native species." What is your response?

Answer: Keystone's standard procedure is to reseed native species in native habitats. This standard procedure may be modified based on landowner input.

22. On page 3 of his direct testimony, Kirschenmann addresses disturbance of habitat for the least tern, bald eagle, and American burying beetle. What is your response?

Answer: All of these issues are within the jurisdiction of the US Fish and Wildlife Service (USFWS) and Keystone and will be addressed in the Biological Assessment being prepared parallel to the Environmental Impact Statement process. The

recommendations developed by the USFWS will be followed.

23. On page 7 of her direct testimony, Paige Hoskinson Olson states that the survey summary prepared by SWCA Environmental Consultants for the Department of State does not include the identification of places of religious and cultural significance, or the identification of deeply buried archaeological deposits. What is your response?

Answer: The identification of religious and cultural sites is a matter for the Department of State as the lead agency for consultation under Section 106 of the National Historic Preservation Act. Keystone is developing a geomorphological plan for identifying deeply buried archaeological deposits along the pipeline route, focusing on areas of high probability for containing unidentified archaeological sites (river crossings).

24. On pages 7-8 of her direct testimony, Olson lists ten archaeology sites identified during surveys. What comment do you have about these sites?

Answer: Eligible or potentially eligible sites will not be affected by pipeline construction. Sites determined not eligible by DOS with SHPO concurrence will not require avoidance measures.

25. On page 9 of her direct testimony, Olson indicates that her office recommended to the Department of State that a geomorphologic study be conducted to identify areas with the potential for deeply-buried archaeological deposits. What is your response?

Answer: The Department of State has not adopted this recommendation at this time. However, Keystone is developing a plan for DOS and SHPO review should the DOS deem this requirement necessary.

26. On pages 7-8 of his direct testimony, Ross Hargrove recommends that Keystone consult with the South Dakota Department of Game, Fish, and Parks to determine fish spawning periods when in-stream construction activities should be avoided to avoid impacting commercial or recreational fisheries. What is your response?

Answer: Consultation is unnecessary because there are no significant commercial or recreational fisheries impacted by the proposed Keystone XL right of way. Keystone previously addressed this in its Response to Staff's Third Data Request, No. 3-75, and stands by its response.

27. Does this conclude your rebuttal testimony?

Answer: Yes.

Dated this 16 day of October, 2009.

Jon Schmidt

Exhibit A

3-23

Data Request:

Provide a table identifying the information on soil limitations available in the SSURGO2 database for the pipeline route, pump station and valve sites, and other work areas (e.g., depth to bedrock, drought-prone, steeply-sloping, saline, sodic, saline-sodic, compaction-prone, and highly wind and highly water erodible). The table should identify crossing lengths for each limitation category in miles and percentages by county. Provide a similar table identifying other sensitive soils along the pipeline route or within other work areas (e.g., prime farmland or hydric soils or soils with low reclamation potential) by county.

Response:

See attached Table.

3-24

Data Request:

Provide definitions of the soil limitations discussed in the application. The definitions should identify the soil properties and ranges in properties used to place soils within a certain limitation category (e.g., slight, moderate, and severe limitations due to slope, ranges in electrical conductivity for salinity, and Sodium Adsorption Ratio for sodicity).

Response:

The soil assessment for the proposed project is based on SSURGO database review and analyses. As noted in DR 3-23, a table generated from GIS for the updated centerline (2/15/09) provided soil limitation information. The following soil limitation categories provided in the application are:

Severe Wind Erodible Soils - Includes all soils in WEG of 1, 2, 3.

Severe Water Erodible Soils - Slopes >8% with a Kw>0.24 and all slope greater than 15%

Low Reclamation Potential Soils – pH less than 3.5 (very acidic) greater than 8.5 (very alkaline)

Criteria	Saline	Sodic	Saline-Sodic
EC (mmhos/cm)	> 4	< 4	> 4
SAR	< 13	> 13	> 13

Prime Farmland - Includes land listed by the NRCS (2007) as potential prime farmland if adequate protection from flooding and adequate drainage are provided.

Hydric Soils – As designated by the NRCS (yes/no)

Compaction Prone Soils- Includes soils that have clay loam or finer textures

Response prepared by: Scott Patti, AECOM

3-24 (Continued)

Stony/Rocky Soils - Includes soils that have either: 1) a cobbly, stony, bouldery, gravelly, channery, flaggy, or shaly modifier to the textural class, or 2) have >five percent (weight basis) of stones larger than three inches in the surface layer.

Shallow Bedrock - Includes soils that have lithic bedrock within 60 inches of the soil surface.

Droughty Soils - Includes coarse-textured soils (sandy loams and coarser) that are well drained or excessively drained.

These interpretations were based on data available within the SSURGO database. SSURGO data were downloaded for each county crossed and run in GIS for the proposed project locations. Soil characteristics, identified above, for each soil component within a map unit were then identified within the Access database. The Soil Data Viewer extension for SSURGO only allows limited analysis and can get as specific as the Access data base (not able to pull out information on minor components), and therefore was not used for this in-depth analysis.

3-25

Data Request:

In areas with substantial amounts of soils identified as saline, sodic, or saline-sodic, identify any specialized construction and/or restoration efforts or mitigation measures that are proposed to maintain soil productivity (particularly in agricultural lands).

Response:

Specifications for construction/reclamation procedures will be developed prior to construction. These specifications, called Construction/Reclamation (Con/Rec) Units, will provide the contractor with instructions for practices such as clearing and grading, topsoil salvage, trenching, erosion control, seedbed preparation, seed mix and seeding method. The Con/Rec Unit (example Con/Rec Unit names are Mixed Grass Prairie, Badlands, Forested Waterway, Crop Field and Tame Pasture) assigned to any given location along the pipeline route will be determined by site-specific conditions including, but not limited to, pre-construction land use, slope, soils and vegetation. Some of the construction/reclamation measures that might be utilized at sites with saline, sodic or saline-sodic soils could include:

- alter soil handling procedures to reduce disturbance of natural soil horizons;
- segregation of topsoil materials conserved to avoid increasing soil quality concerns to unaffected areas;
- discing or harrowing respread topsoil only to the depth of the topsoil, to avoid mixing with subsoils;
- selection of a seed mix appropriate for the site; and
- to the extent practicable, avoiding small saline seeps in agricultural lands, if these seeps do not encroach substantially into the ROW.

3-26

Data Request:

Identify any specialized construction and/or restoration efforts or mitigation measures that are proposed to be used in steep areas characterized by the presence of sodium bentonite that have been identified as having potential slump and/or restoration problems.

Response:

The primary goal of post-construction restoration and reclamation on steep slopes with bentonitic clays would be to stabilize the right-of-way (ROW) to prevent accelerated erosion. Construction, reclamation and mitigation measures that could potentially be used at these sites, depending on site-specific characteristics such as slope steepness, include but would not be limited to:

- temporary sediment barriers to retard slope erosion during construction;
- placement of trench plugs to restrict subsurface water flow in the backfilled trench, which could accelerate slope slumping;
- recontouring the ROW to match surrounding topography to the extent practicable, to minimize concentrating storm water runoff on the ROW;
- permanent sediment control structures such as water bars to divert storm water runoff from the regraded ROW;
- depending on the amount of naturally occurring rock or woody debris on the reclaimed slope, mulching with materials such as straw on more gentle slopes, wood fiber mulch and tackifier on moderately steep slopes and erosion control matting on extremely steep slopes or at sites where other mulching methods might not be effective; and
- revegetation, if appropriate for the site, with species similar to those found adjacent to the ROW.

3-27

Data Request:

Identify any specialized construction methods that are proposed to maintain a safe workplace when construction occurs during wet periods (i.e., after heavy precipitation events) on "greasy" sodium-affected soils, especially when these conditions occur in areas that are not level.

Response:

Should the precipitation event be substantial enough to prevent personnel and equipment from reaching the site, work will be shut down until site conditions permit safe transportation to the job.

Depending upon the slope, working equipment will be secured to stationary equipment or "dead-man", by means of cables. The muddy, slick surface shall be bladed to permit equipment and personnel to perform their tasks, minimizing the risk of accident. The open ditch shall be pumped free of standing water through a filter bag or straw bales to capture sediment.

3-28

Data Request:

Portions of the pipeline route cross areas with soils containing shallow, near-surface (both lithic and paralithic) bedrock. Excavation in these areas may result in a significant bulking factor due to the addition of large voids between clods of excavated material when spoil is returned to the trench. Identify, by milepost, areas containing shallow or near-surface bedrock, and describe how Keystone would dispose of excess spoil material in these areas.

Response:

A table of shallow bedrock is found in response 3-23. Such rocks shall be disposed of as explained in DR 3-14.

3-29

Data Request:

Clarify whether any of the aboveground facilities would be built on soils classified as prime farmland. If so, identify the acreage of prime farmland to be permanently affected by the project for each facility.

Response:

Please see response to 3-23. The acreage of prime farmland and farmland of other importance (as listed by the NRCS) permanently impacted by aboveground facilities is 13.6 acres.

Response prepared by: Jon Schmidt, Trow

3-30

Data Request:

Provide a more detailed description of soil types along the pipeline route in the Sand Hills region in southern Tripp County. Identify the Sand Hills region on the soils mapset. Identify and describe any special construction or reclamation methods proposed for restoring soils in this region.

Response:

See response 3-61 for a table of soils with sand hills characteristics and a map of the region.

The CMR Plan, Section 4.15 provides construction and restoration measures to be implemented in this area.

Response prepared by: Jon Schmidt, Trow

3-31

Data Request:

Much of the land along the pipeline route is in pasture or range. Many of the seed mixes and reclamation procedures for disturbed rangeland are dependent on range classification rather than soil type. Identify the applicable NRCS range class equivalent (NRCS Ecological site, e.g. impervious clay, saline loamy, etc. in the SSURGO2 database) for the soils crossed by the pipeline route.

Response:

Please see the response to Data Request 3-25 for an explanation of the Construction/Reclamation (Con/Rec) Units that will be used in this project. Con/Rec Units are based on several factors, including but not limited to soil type, and will be determined from information gathered from several sources, including a pre-construction reconnaissance of the entire pipeline route, aerial photo analysis, and contact with NRCS offices in every county crossed by the pipeline. At that time, NRCS Ecological Sites/SSURGO2 data may be incorporated into Units, or used to group sites into a common Unit.

3-32

Data Request:

Provide an estimate of the length of the pipeline route, in miles, in which agricultural draintile systems are likely to be encountered during trenching activities.

Response:

Keystone estimates that drain tile may be encountered along approximately three miles of the pipeline route in South Dakota. This represents a highly conservative estimate of potential drain tile locations.

3-33

Data Request:

Describe how Keystone would monitor the pipeline right-of-way to identify areas where soil productivity may be degraded as a result of pipeline construction. Describe what further reclamation measures may be implemented to restore soil productivity.

Response:

Keystone's Construction, Mitigation and Reclamation (CMR) Plan, Section 4.11.1 identifies that follow-on inspections will occur to monitor restoration success (see CMR Plan page 29). See also Section 4.16 of the CMR Plan that outlines Keystone's responsibility to work with landowners to restore areas to suitable productivity.

3-34

Data Request:

Identify whether Keystone will seek National Pollutant Discharge Elimination System general permit coverage for construction-related stormwater discharges from the South Dakota Department of Environment & Natural Resources. Describe how Keystone will ensure that temporary erosion control measures are monitored and maintained after the construction contractor demobilizes and before revegetation has been determined to be successful.

Response:

Yes, Keystone will apply for the general storm water permit coverage for construction. As indicated in the CMR Plan, section 4.16, Keystone will monitor and maintain the right-of-way after construction has been completed.

Response prepared by: Jon Schmidt, Trow